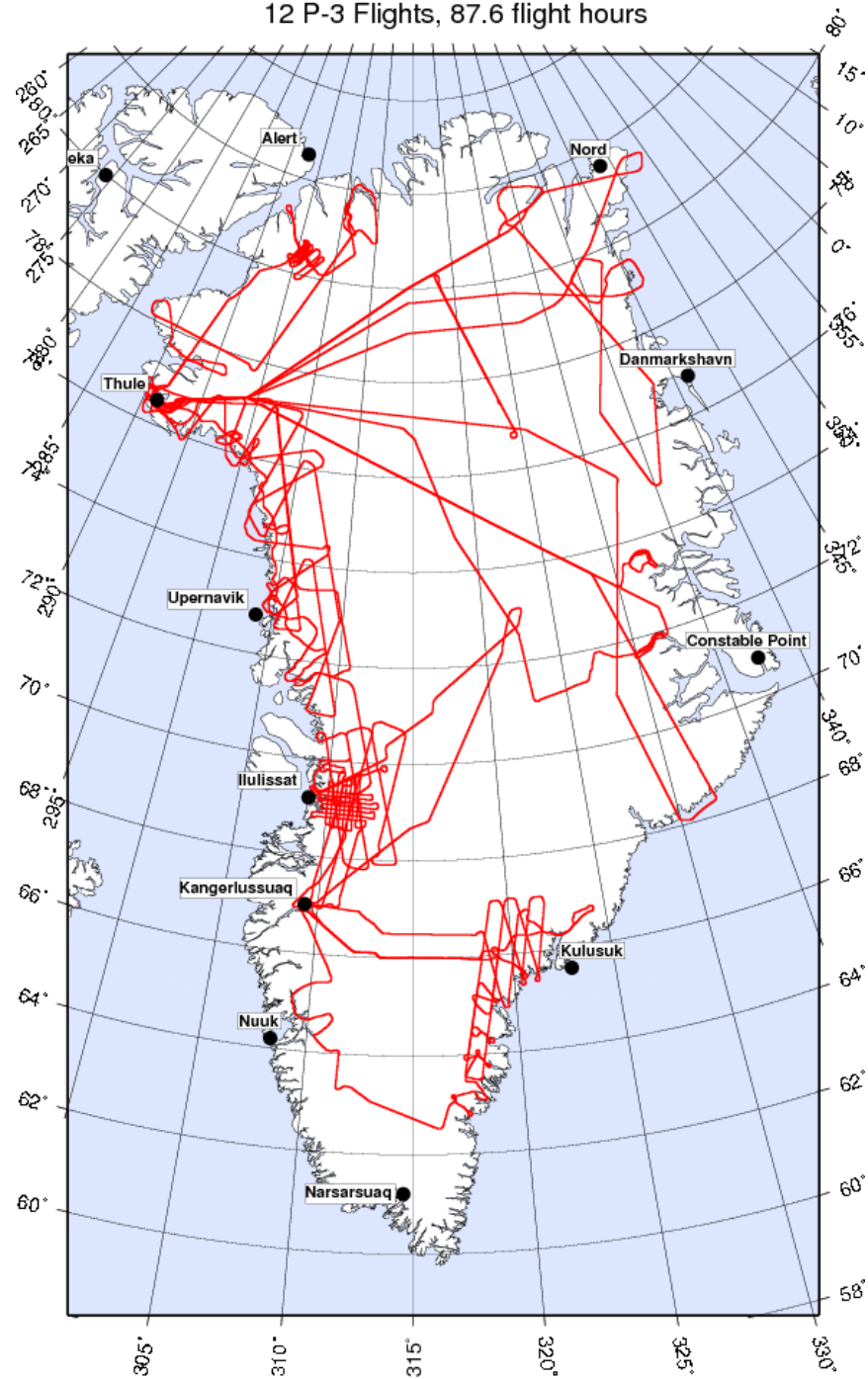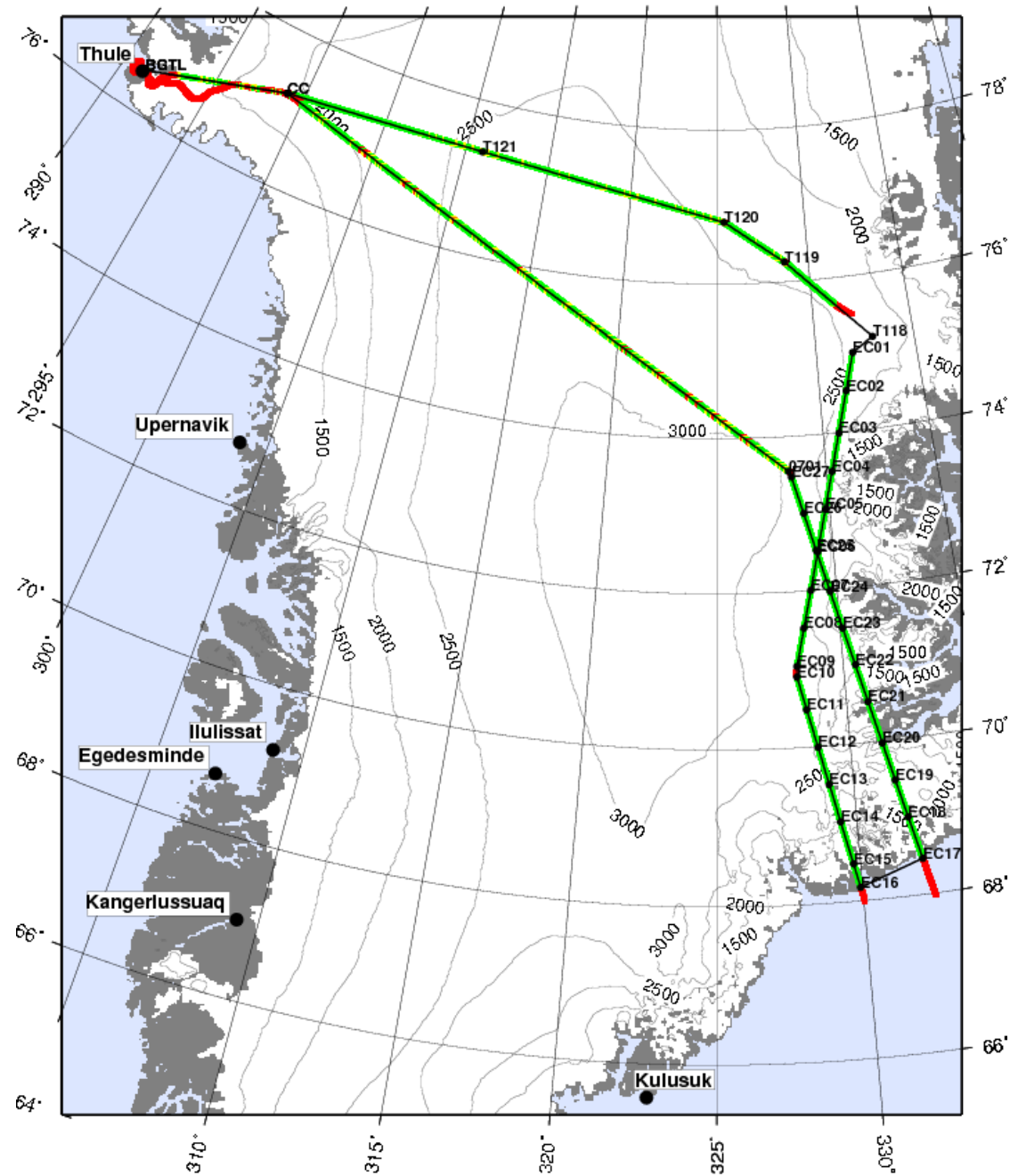# 2009 Low-Altitude Land Ice Missions Flown

12 P-3 Flights, 87.6 flight hours
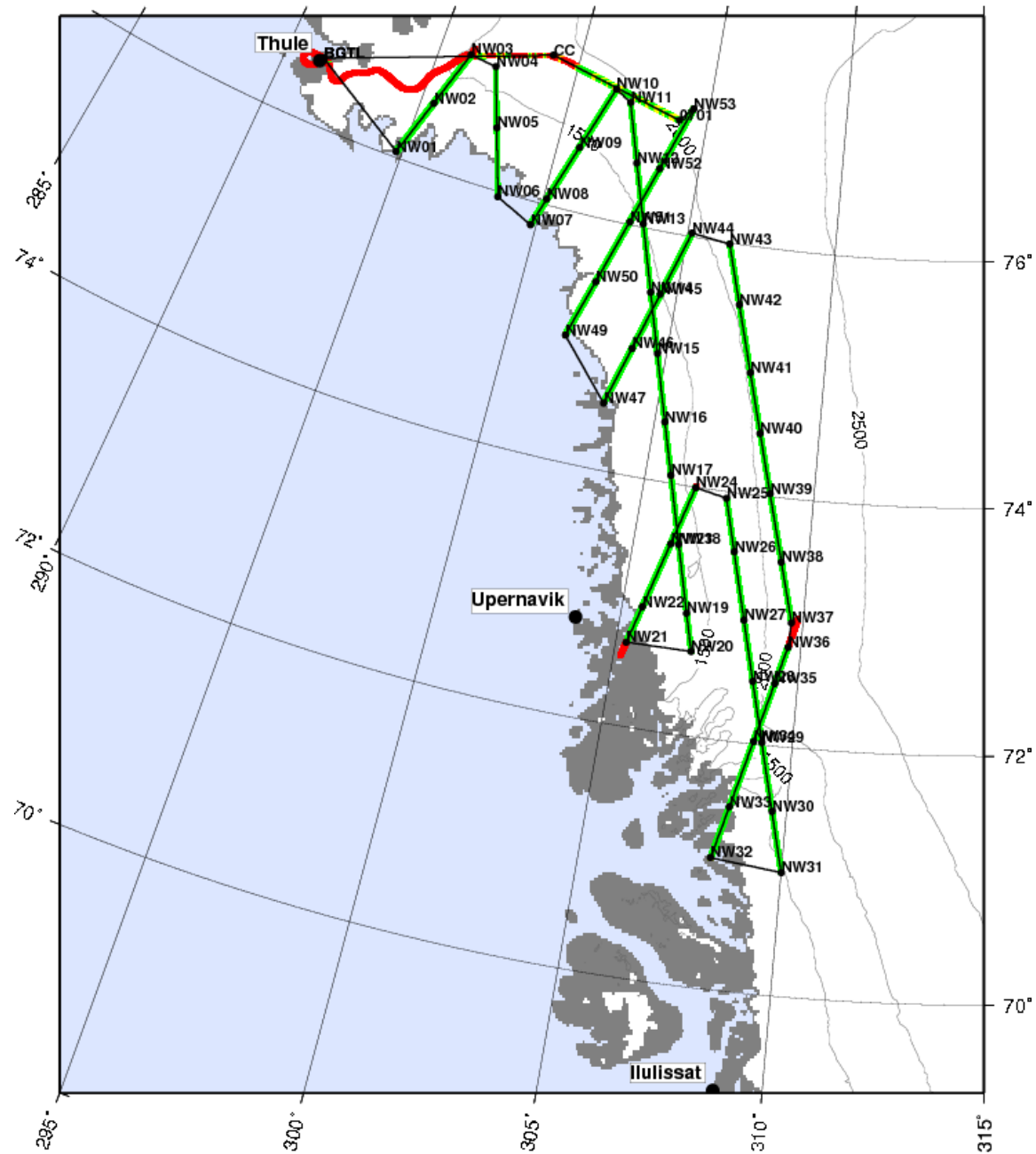
Thule 08
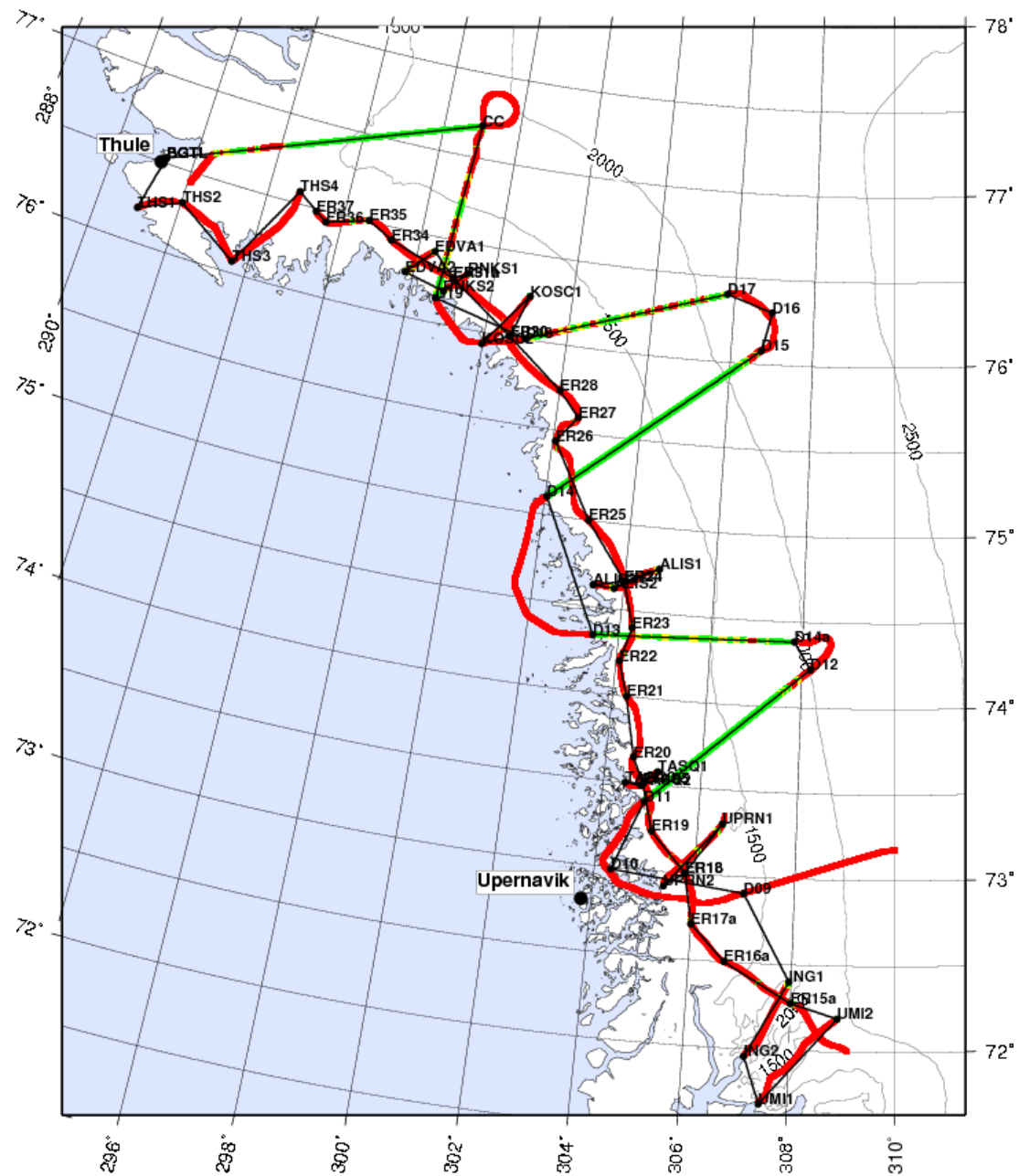## 8.2 hours at 250 knots groundspeed

Thule 06
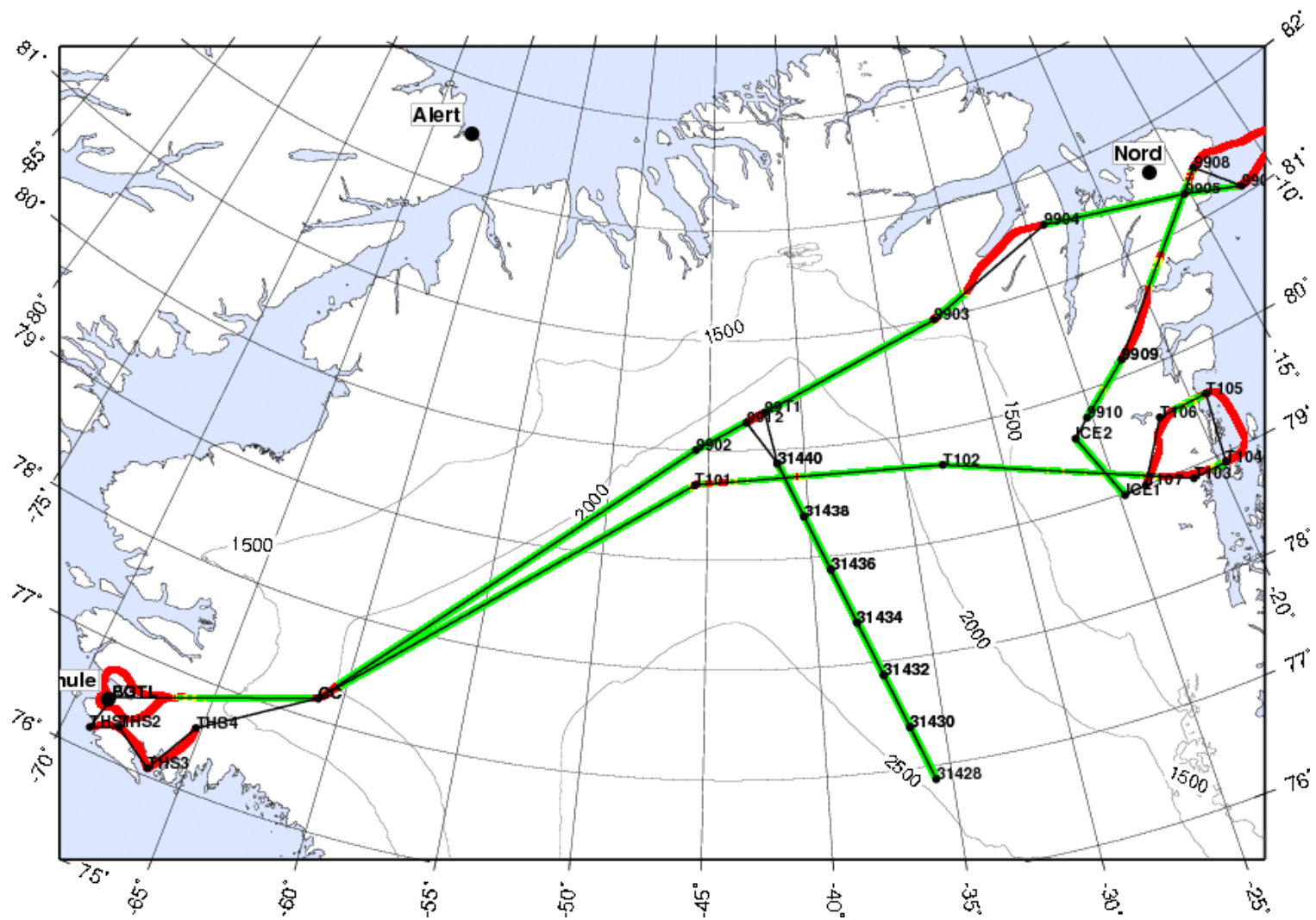## 7.6 hours at 250 knots groundspeed

Thule 04
7.8 hrs at 250 knots groundspeed
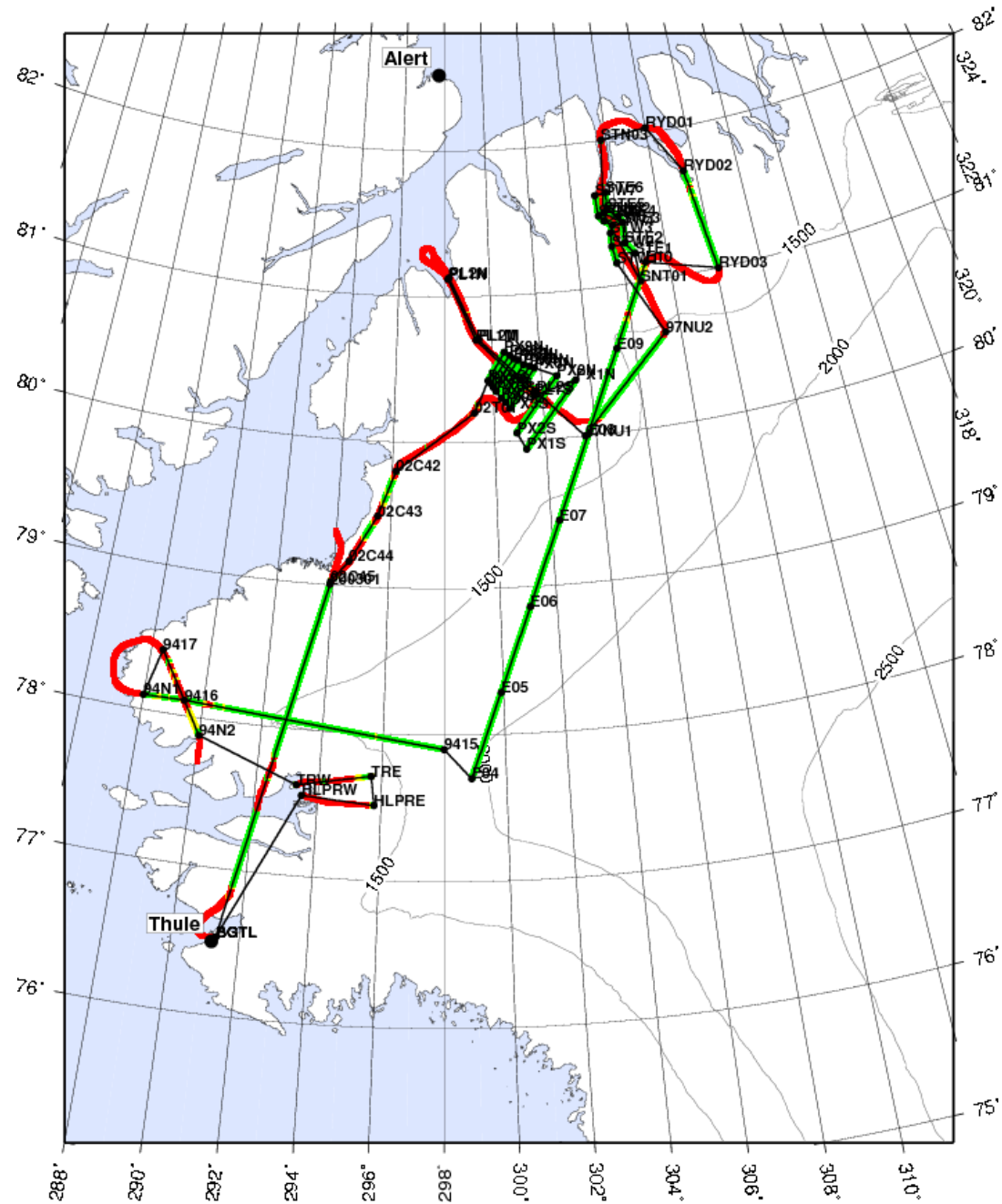
Thule 02
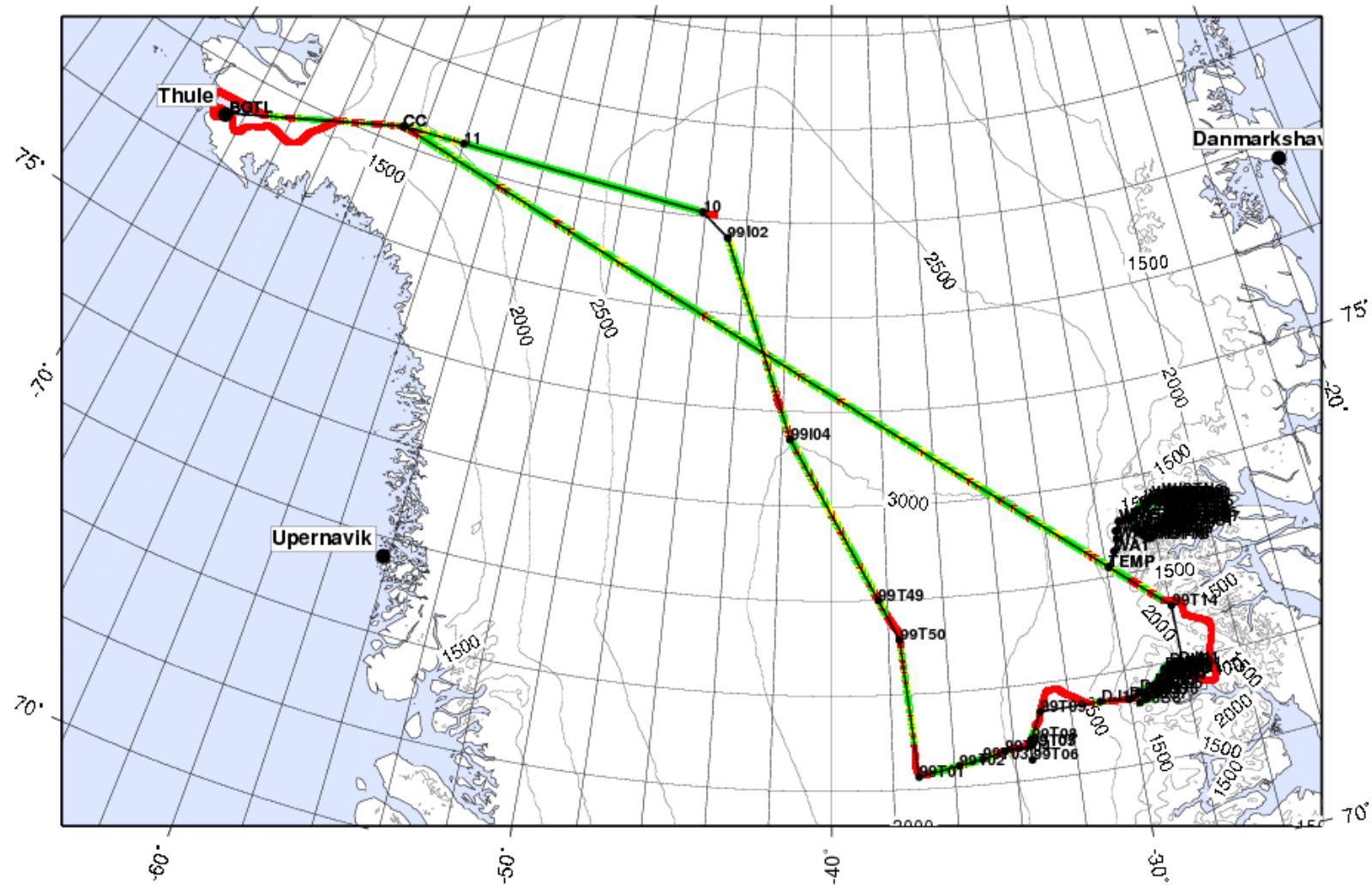## 9.0 hrs at 250 knots groundspeed

Thule 01

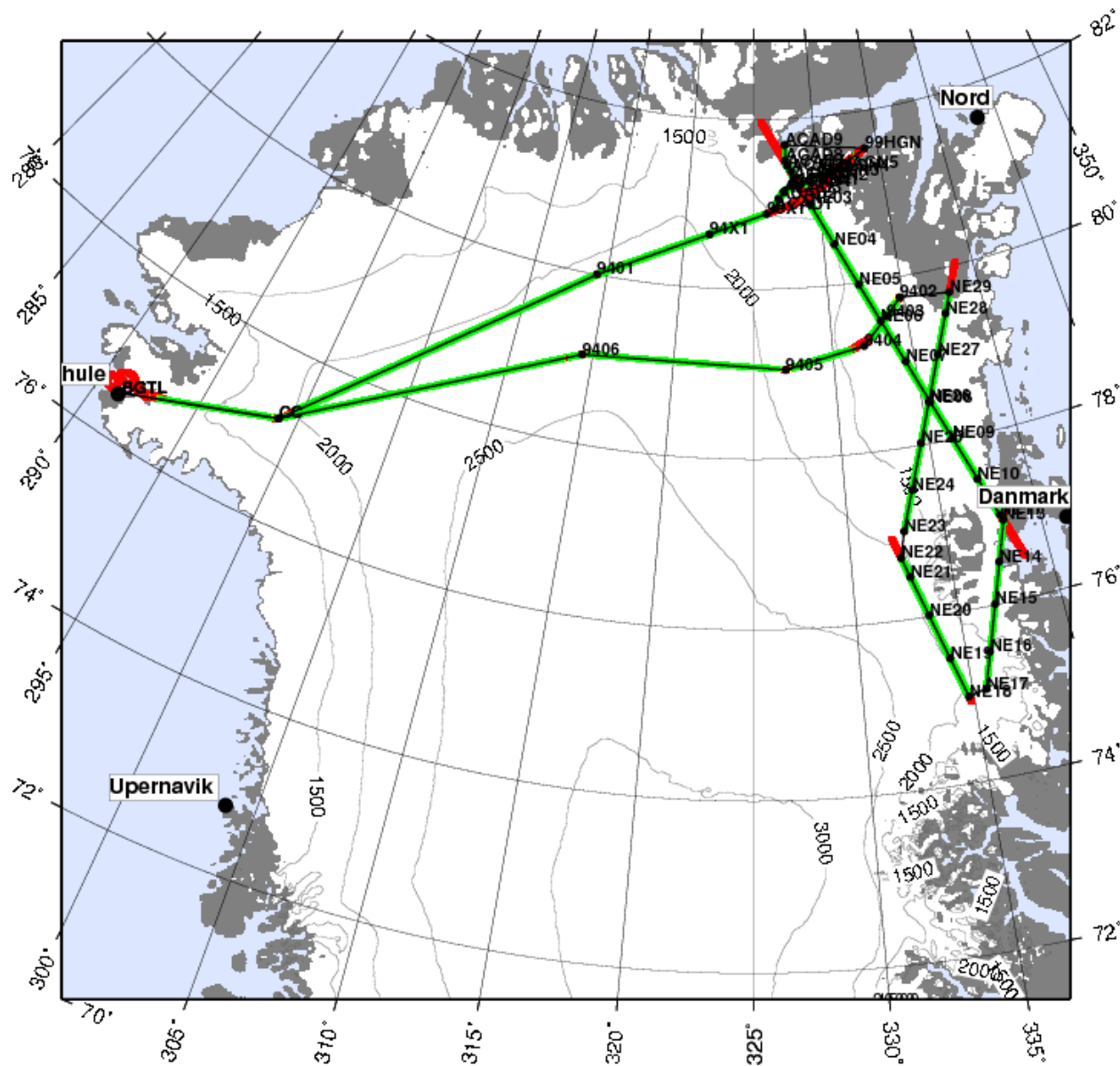## 7.9 hrs at 250 knots groundspeed

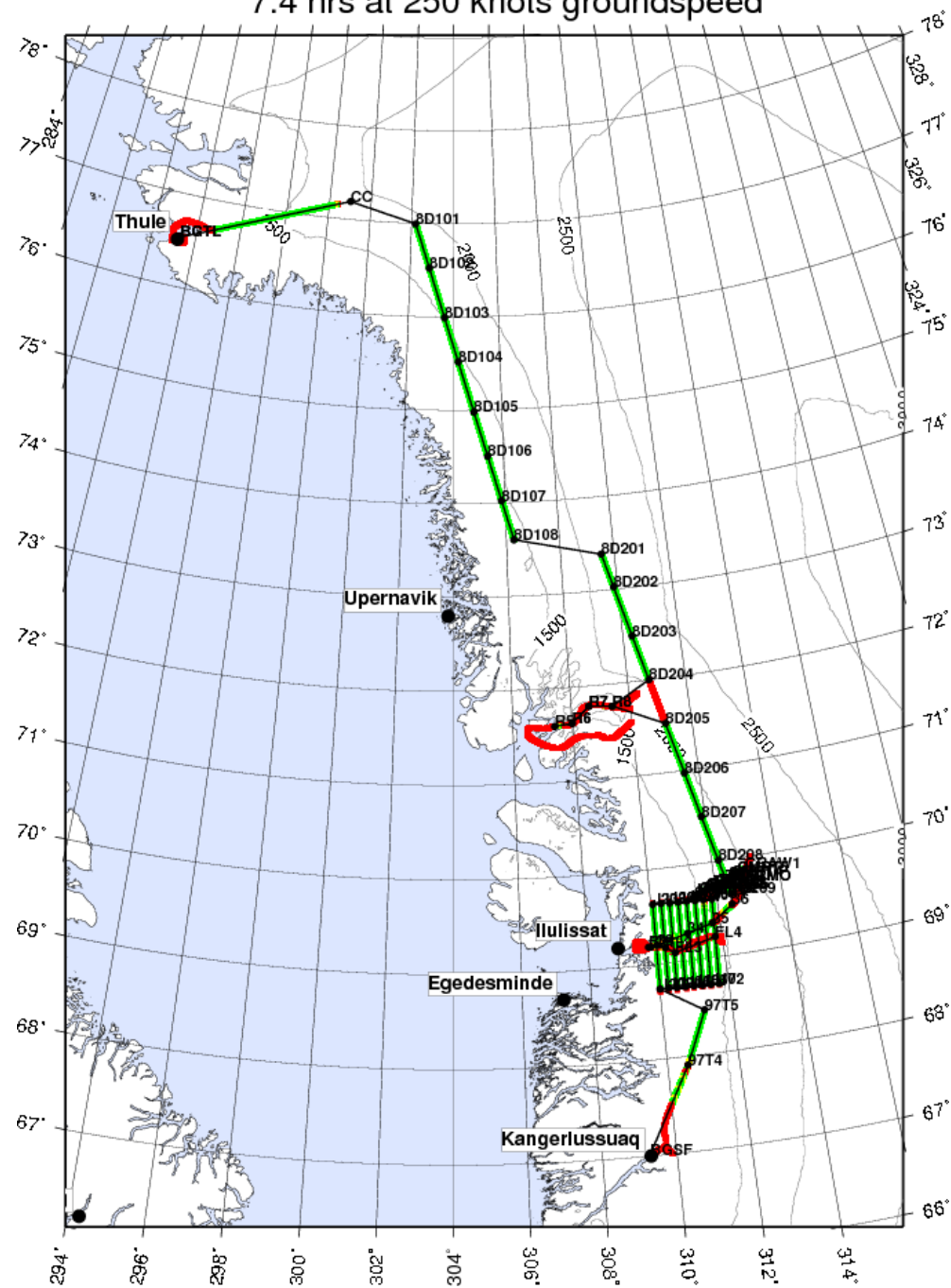# Thule 03

8.3 hrs at 250 knots groundspeed

Thule 07
8.1 hours at 250 knots groundspeed

Thule 05

7.4 hrs at 250 knots groundspeed

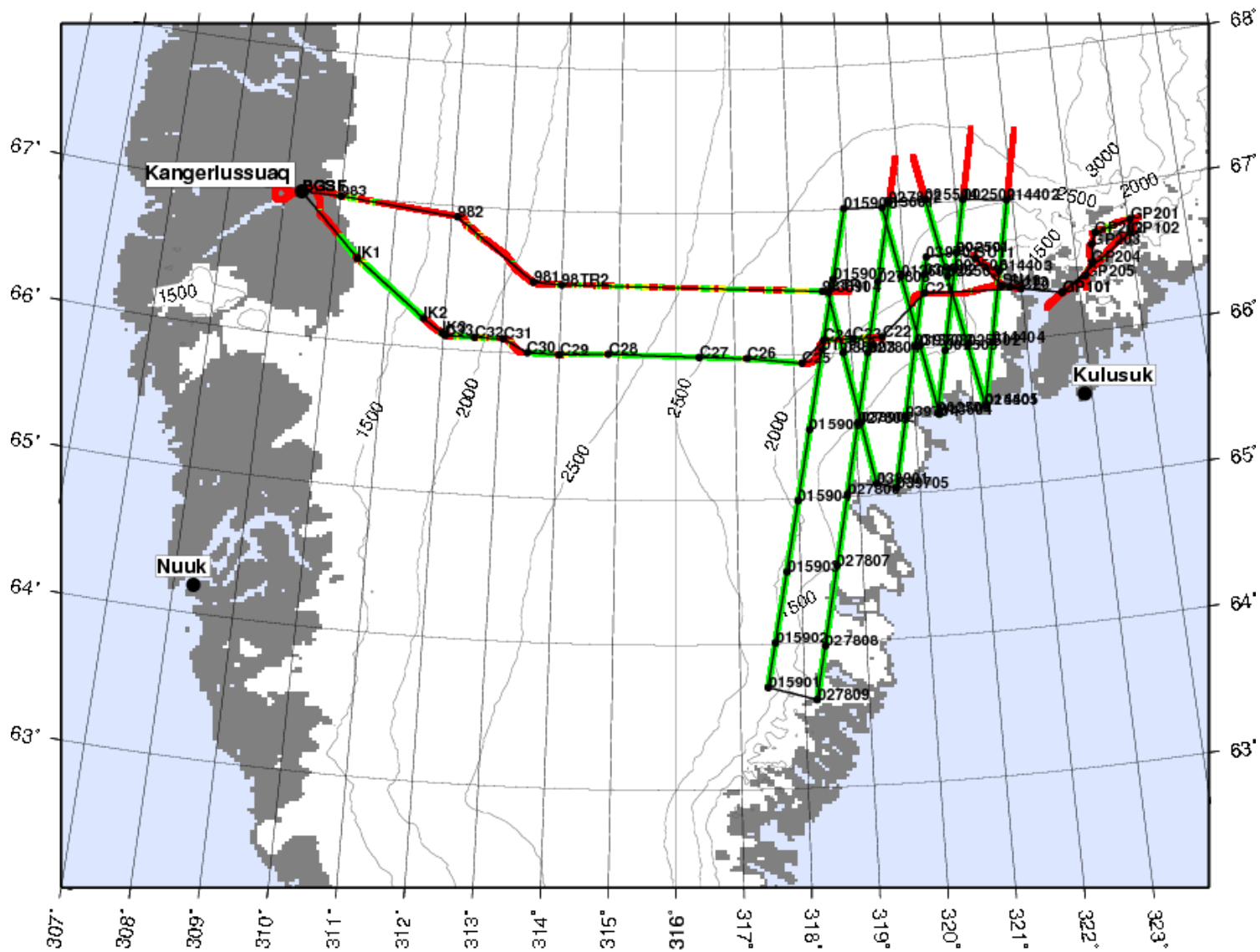Sondy 04

8.4 hrs at 250 knots groundspeed

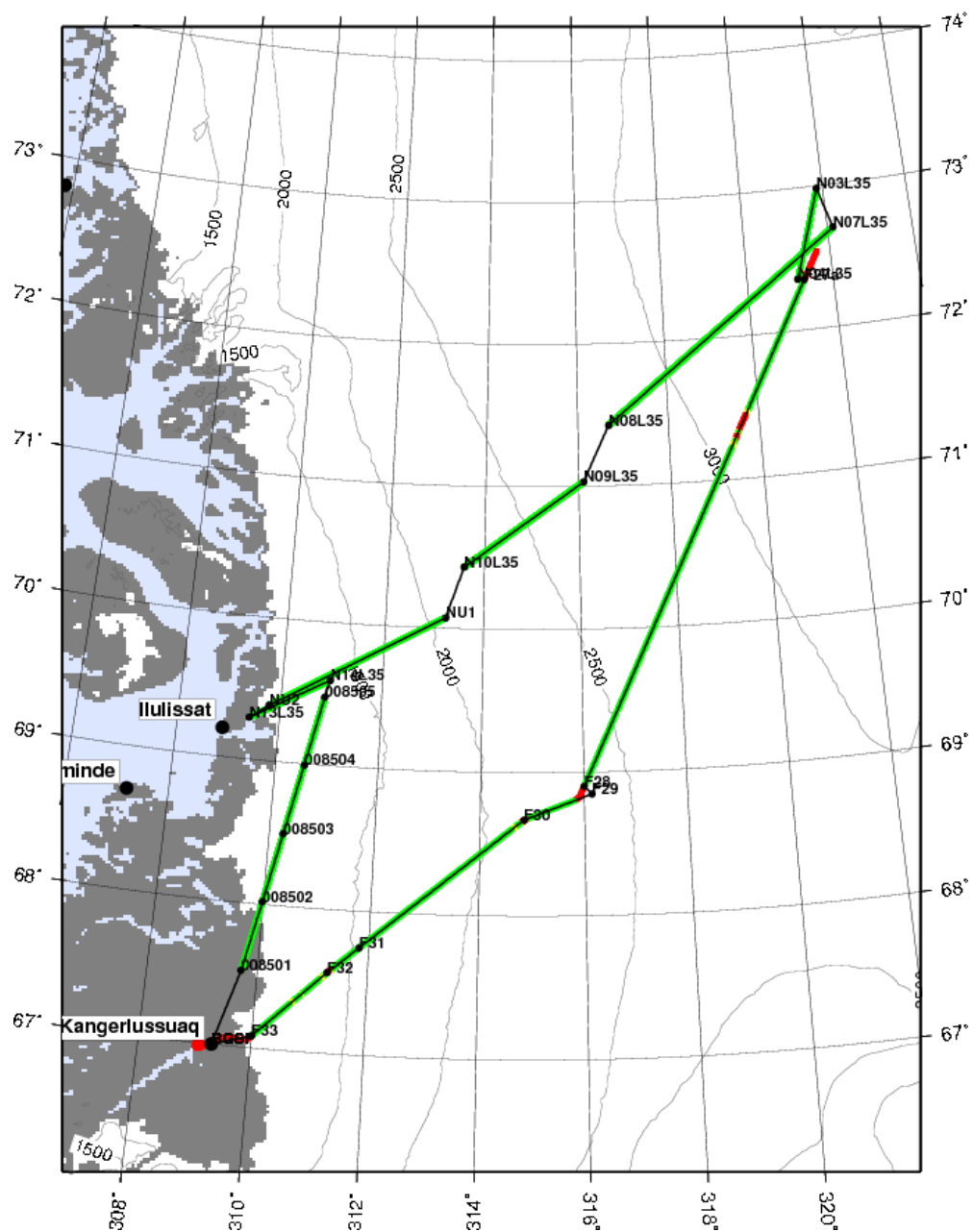**Sondy 03**

8.0 hrs at 250 knots groundspeed

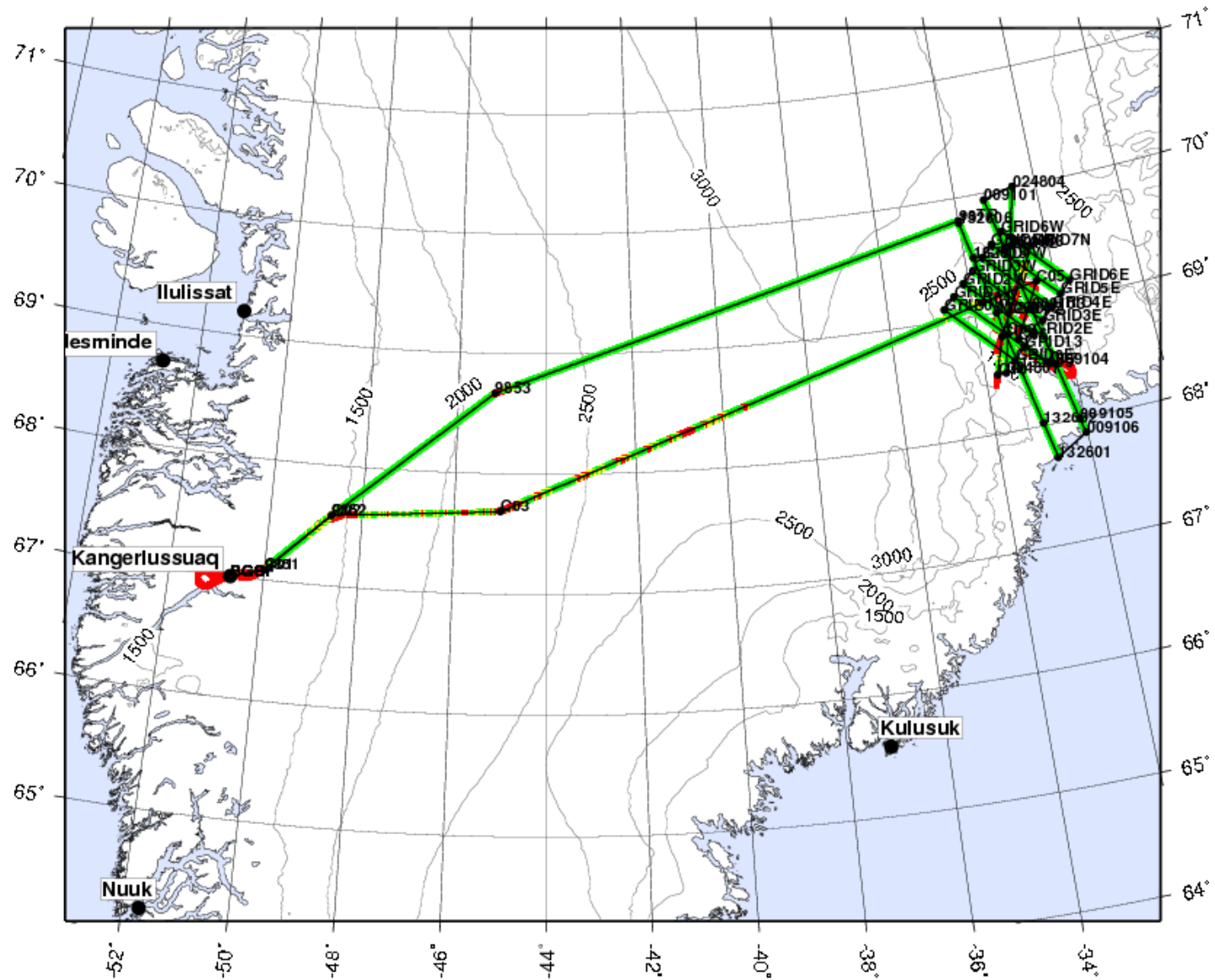# Sondy 02
6.6 hrs at 250 knots groundspeed
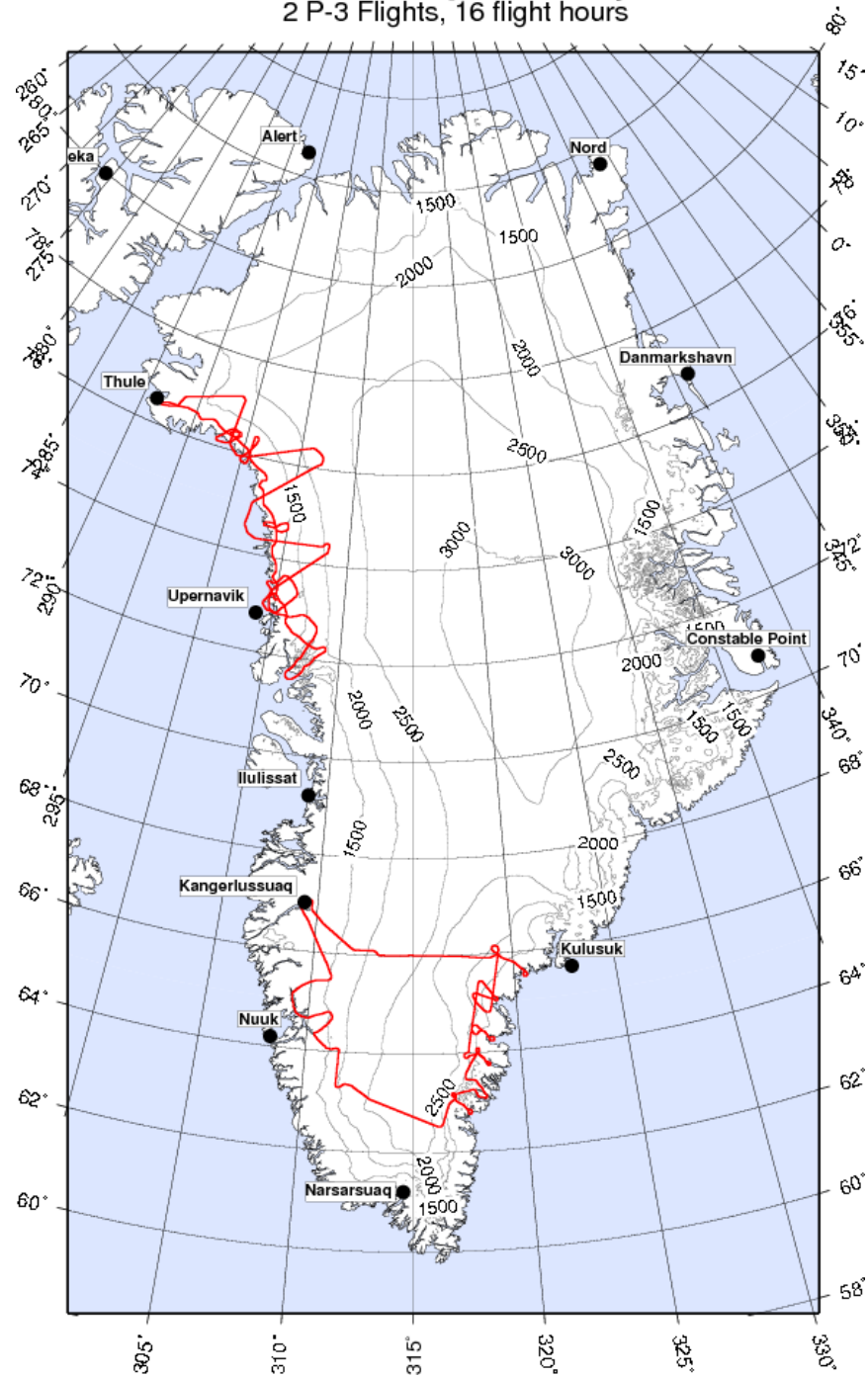
UAVSAR Mission
4.4 hours at 250 knots
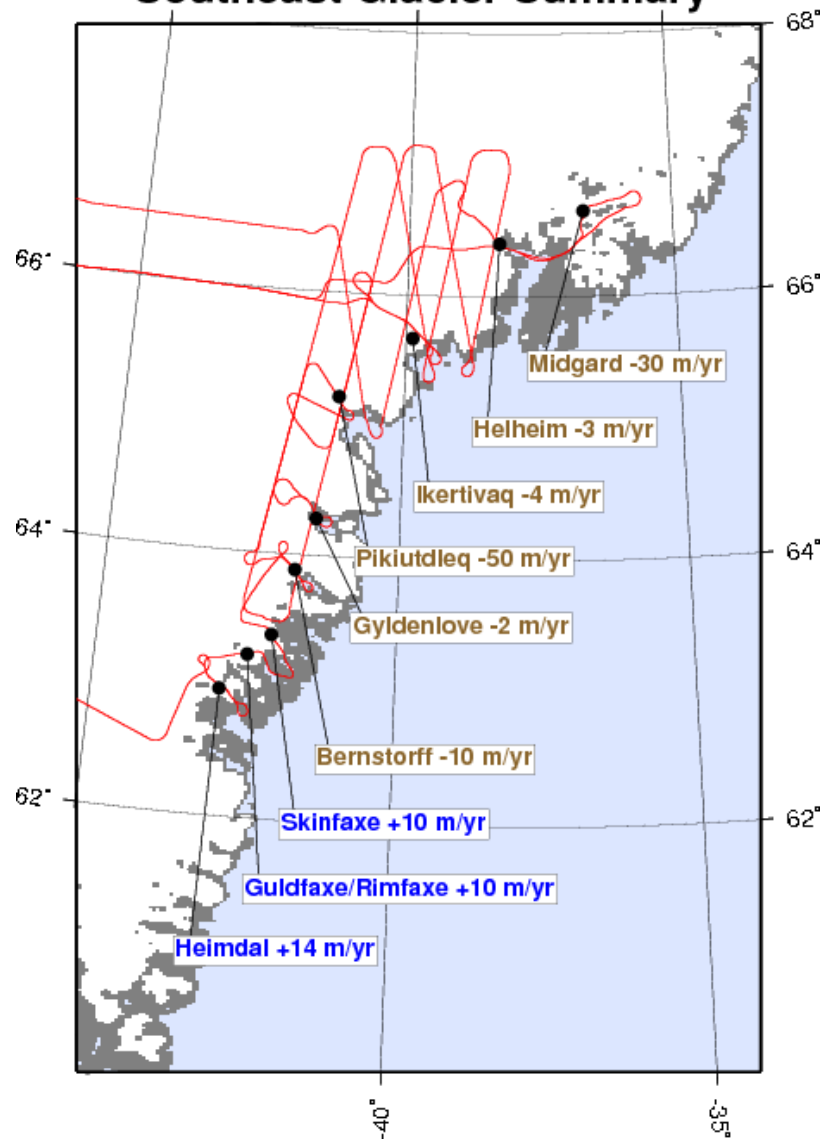
Sondy 01
8.1 hrs at 250 knots groundspeed

Efficient Monitoring of 24 Key Glaciers
2 P-3 Flights, 16 flight hours

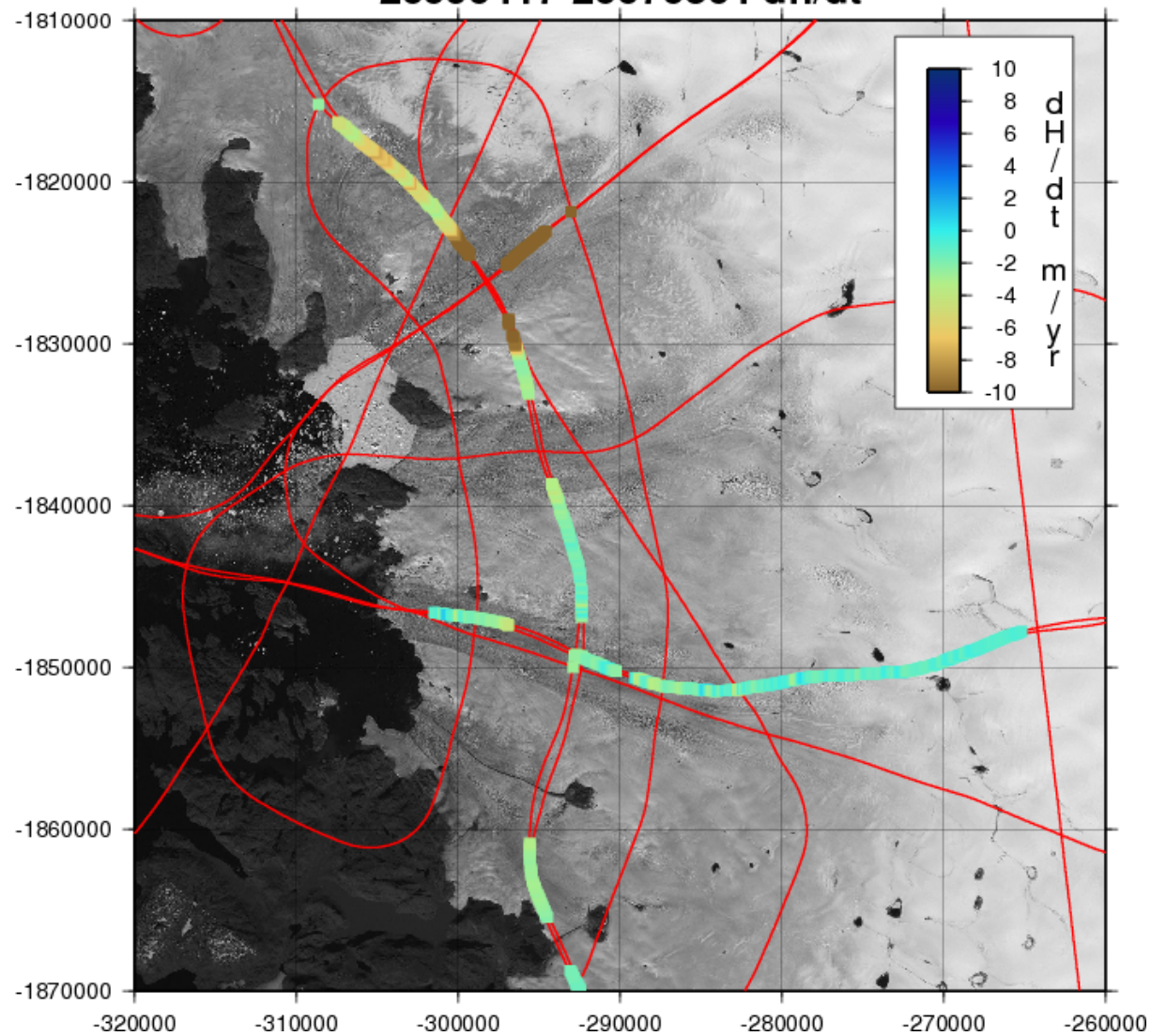# Southeast Glacier Summary
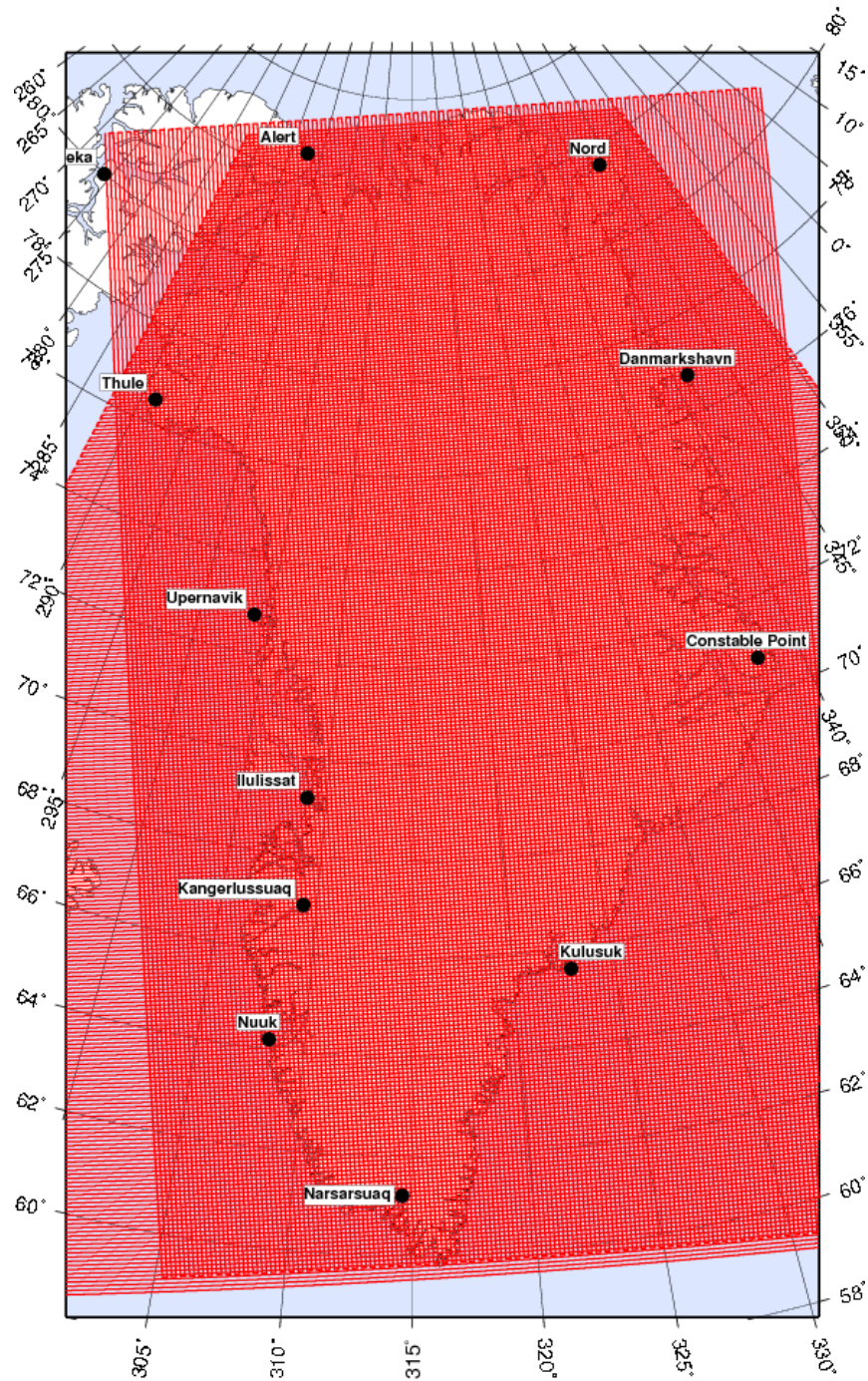
Midgard -30 m/yr

Helheim -3 m/yr

Ikertivaq -4 m/yr

Pikiutdleq -50 m/yr

Gyldenlove -2 m/yr

Bernstorff -10 m/yr

Skinfaxe +10 m/yr

Guldfaxe/Rimfaxe +10 m/yr

Heimdal +14 m/yr

Upernavik
20090417-20070504 dh/dt

10 km Master Grid

eka

Alert

Nord

Danmarkshavn

Thule

Upernavik

Constable Point

Ilulissat

Kangerlussuaq

Kulusuk

Nuuk

Narsarsuaq

Kangerd Grid - 16 P-3 Flight Hours
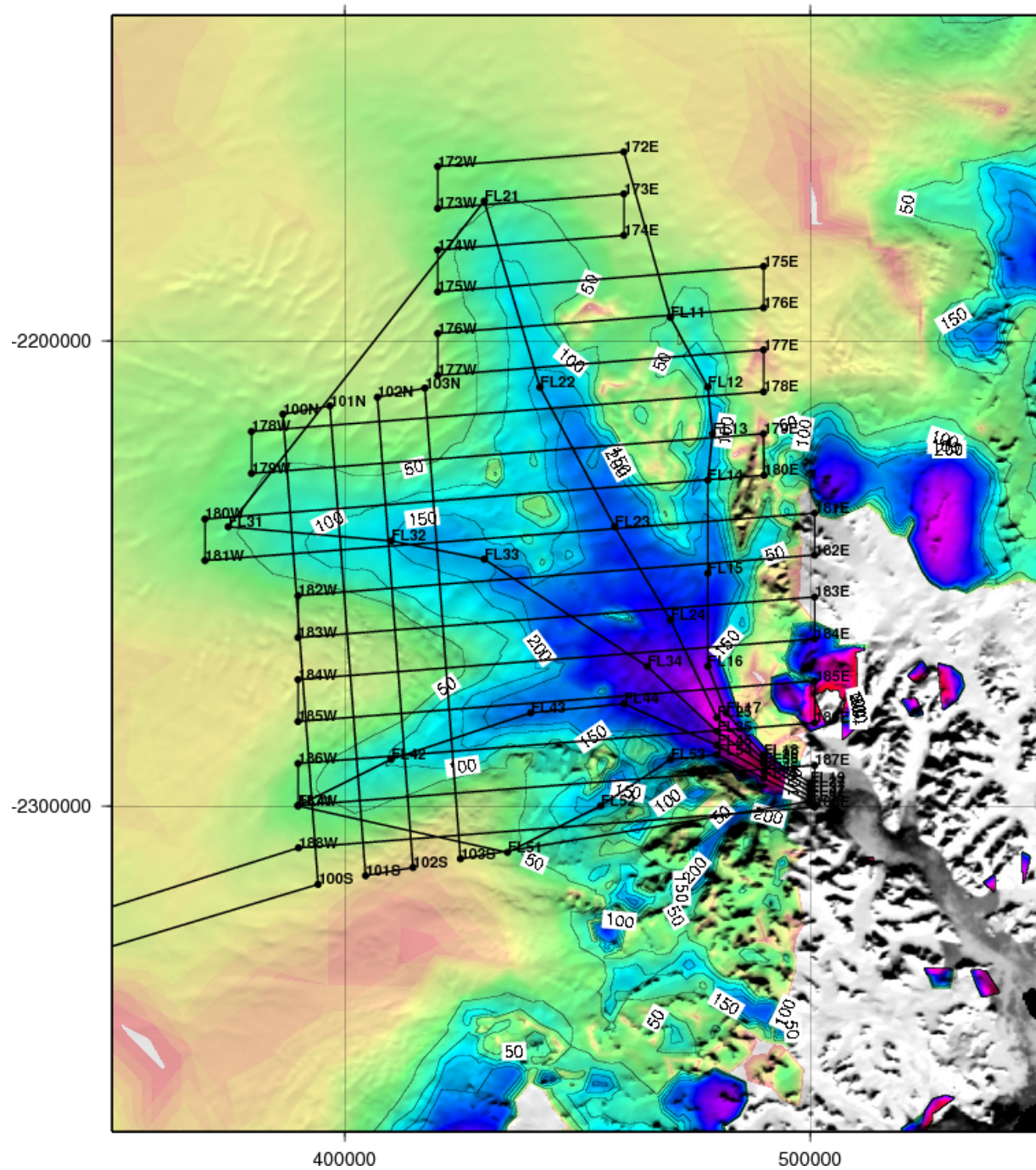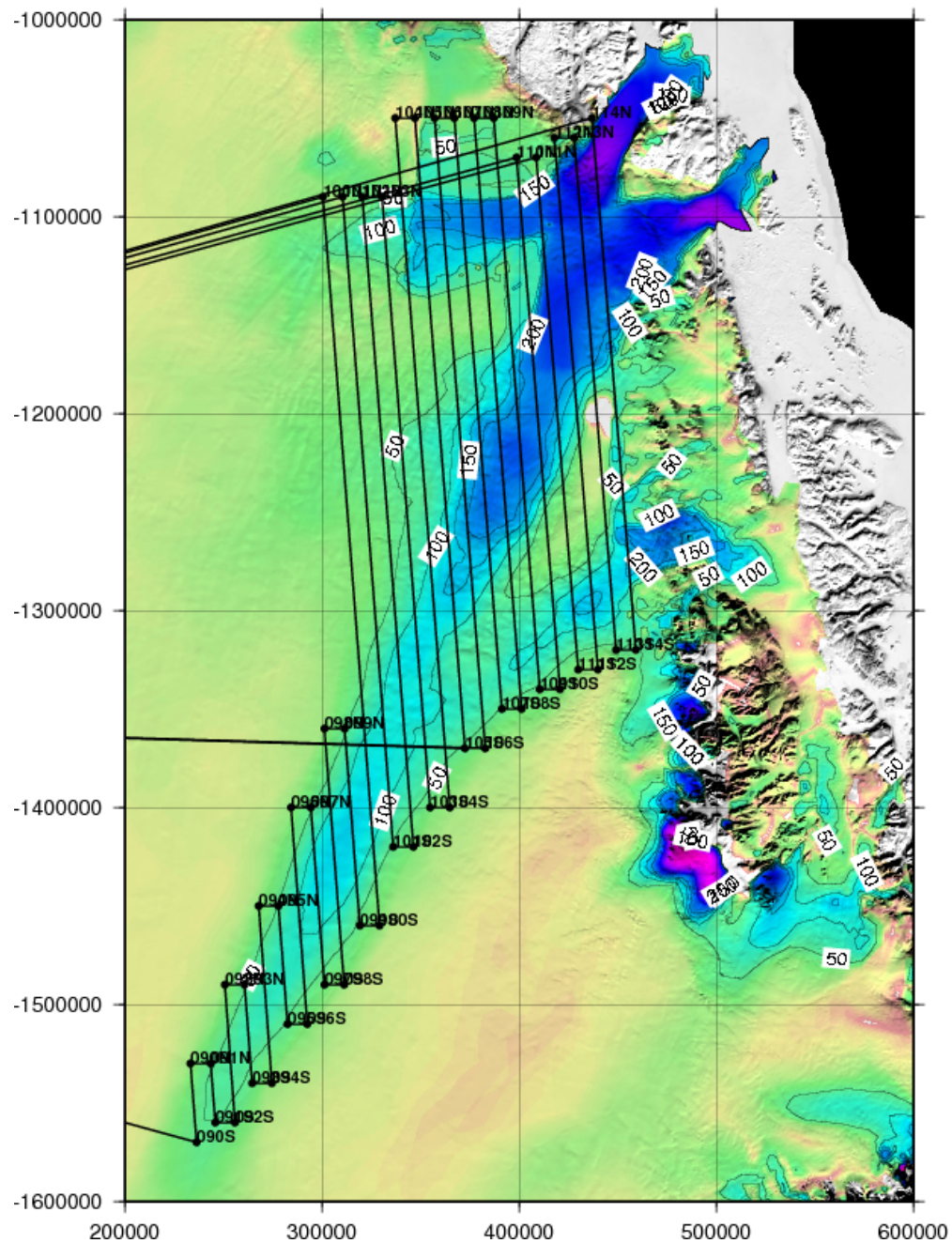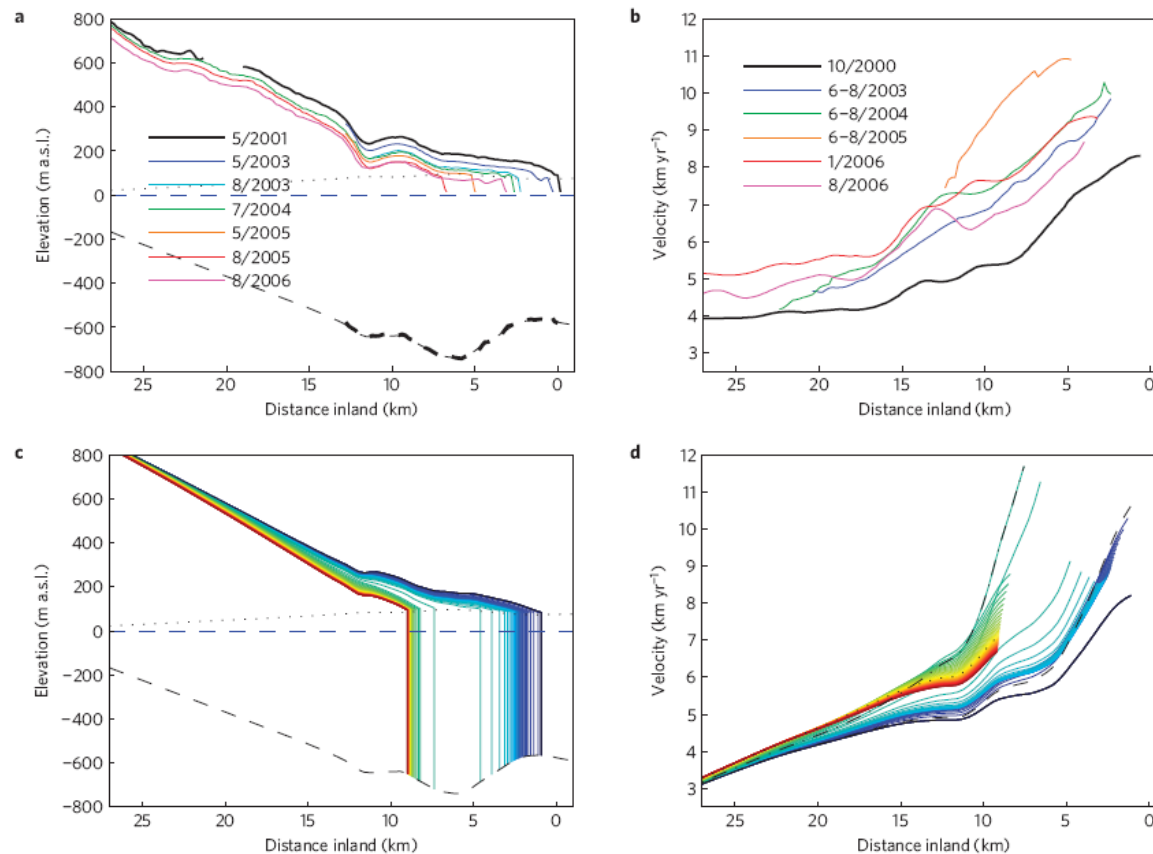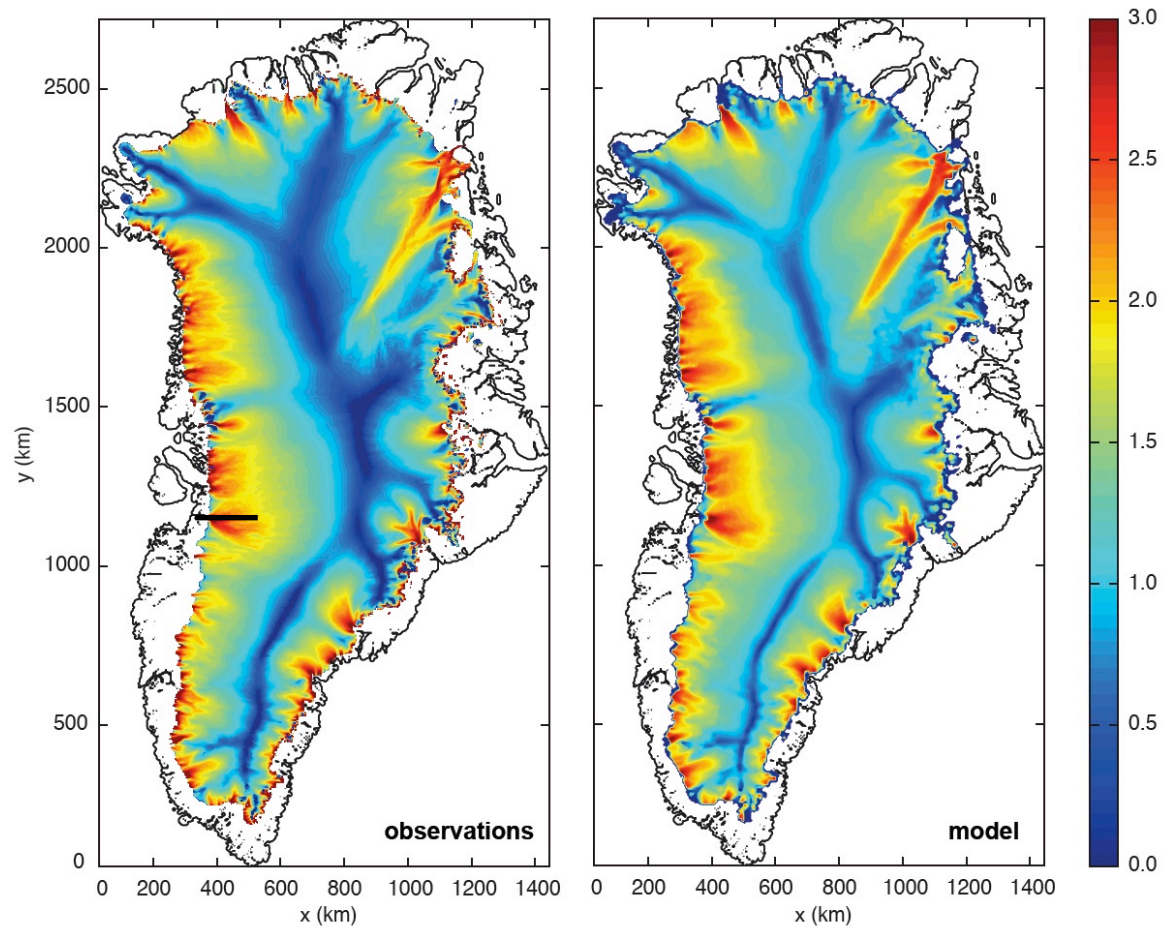
NEIS Grid
4 P-3 Flights

Using observations to constrain models

Repeat- elevation and surface velocity flow lines constrain process-oriented flow models
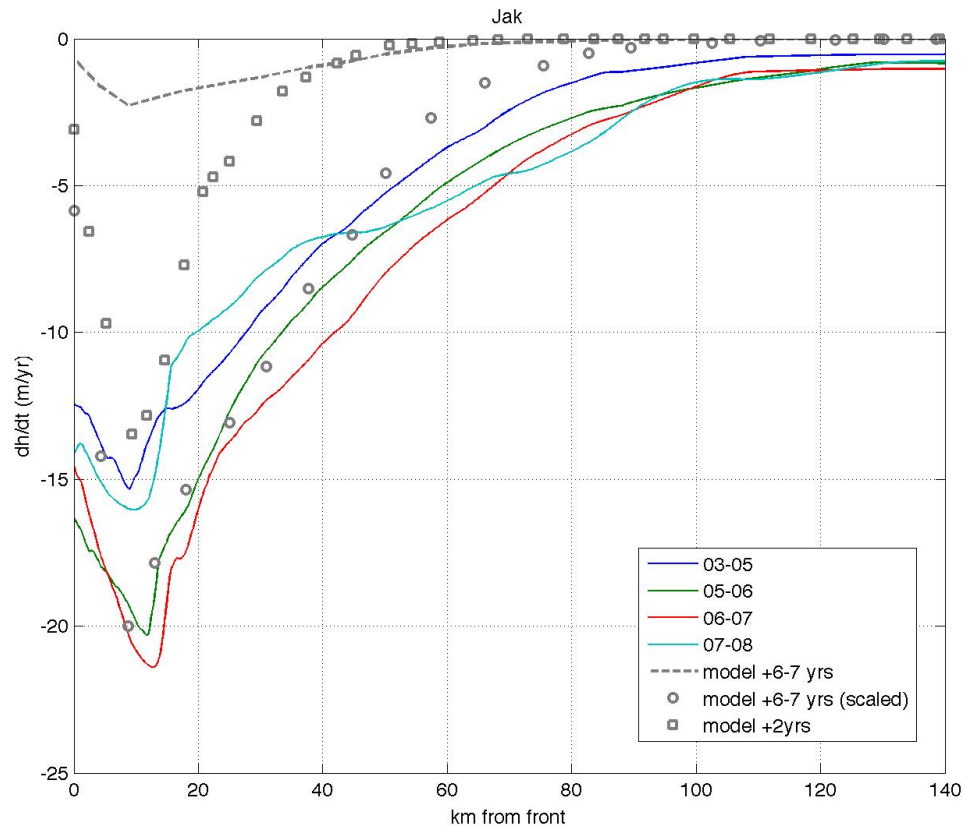NEED bed topography

Nick et al., 2009

Using observations to constrain models

Stephen Price, LANL

Using observations to constrain models

Surface elevation change along Jakobshavn flow-line 2003-2008 From ATM + ICEsat + ASTER + SPOT

Dots = model following a step-perturbation at the front

Stephen Price, LANL